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CASIO

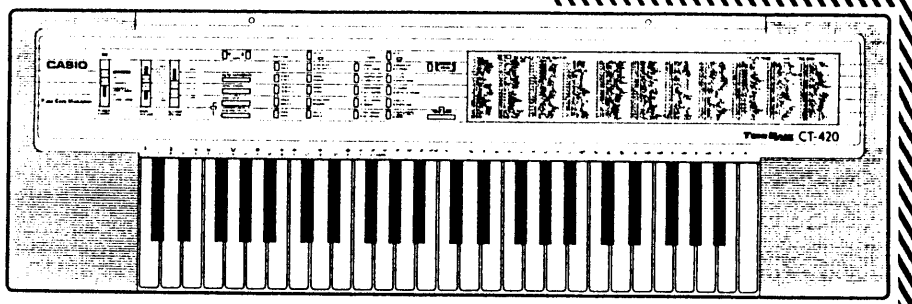
TONE BANK KEYBOARDS

CT-420

ELECTRONIC MUSICAL INSTRUMENT
INSTRUMENTO MUSICAL ELECTRONICO

OPERATION MANUAL 2

MANUAL DE OPERACION 21



(英) (西)

TONE BANK KEYBOARDS CT-420

ELECTRONIC MUSICAL INSTRUMENT

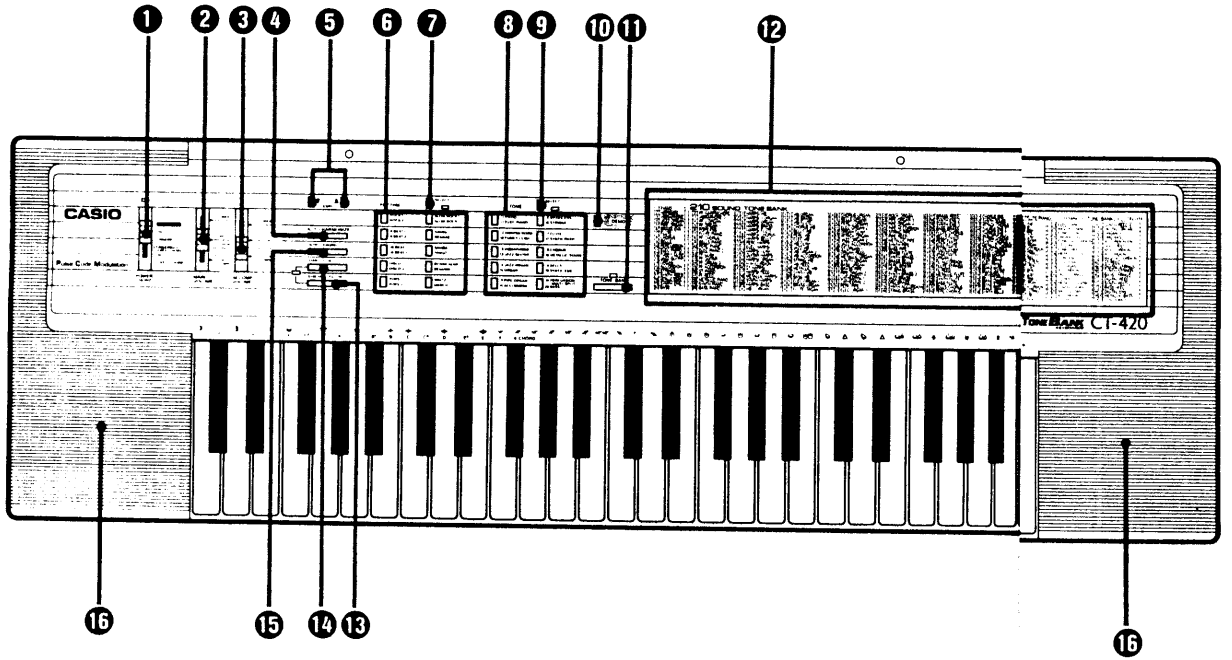
Introduction

Your new CT-420 keyboard is a state-of-the-art musical instrument which incorporates the latest electronics technology to make its operation as easy as possible. Exceptional sound quality backed up by a host of sophisticated features and functions makes this keyboard a joy to play for everyone.

In order to enjoy the features and functions of this unit to their fullest, be sure to carefully read this manual and follow the instructions contained herein.

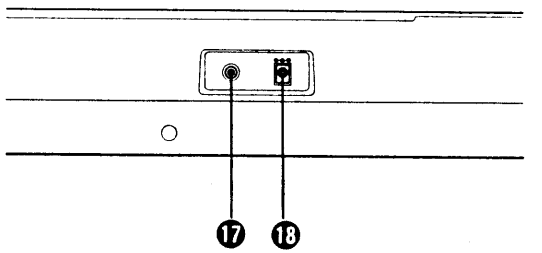
Contents

1. General Guide 4
2. Power Supply 6
3. General Operation 7
4. Preset Tones 8
5. Tone Bank Sound Combinations 10
6. Auto-rhythms 12
7. Auto-accompaniment 13
8. Troubleshooting 17
9. Care of Your Keyboard 18
10. Specifications 19



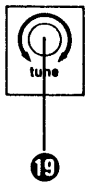
❶ POWER/CHORD switch
❷ MAIN VOLUME slider
❸ ACCOMP VOLUME slider
❹ AUTO HARMONIZE button
❺ TEMPO control buttons
❻ RHYTHM selectors
❼ Rhythm SELECT button
❽ TONE selectors
❾ Tone SELECT button
❿ DEMO button
⓫ TONE BANK button
⓬ 210 SOUND TONE BANK list
⓭ SYNCHRO/FILL-IN button
⓮ START/STOP button
⓯ INTRO/ENDING button
⓰ Built-in stereo speakers

[Rear panel]



⓱ Output jack
⓲ AC adaptor jack

[Bottom panel]



⓳ **Tuning control**
Adjusts the pitch of the entire keyboard within ±30 cents and allows easy tuning with other instruments.

Demonstration Tune

This unit features a preset demonstration tune which has been carefully programmed to showcase all the features and benefits of this unit. Simply press the DEMO button ⓾, and listen to the CT-420 plays itself!

* *The demonstration tune is played in an endless loop. Press the DEMO button again to stop the tune.*
* *The keyboard is inoperable while playing the demonstration tune.*

2 Power Supply

DC Power

- **Dry batteries**

  This unit can be powered by six D size (SUM-1/R20P) manganese dry cell batteries. Weakened batteries will result in lower volume or poor tonal quality. The power indicator lamp will gradually lose its brightness when battery power weakens. At this time, change batteries or shift to one of the alternate power sources mentioned below.

Battery replacement:

① Open the battery compartment cover in front of the unit and take out used batteries.

② Load new batteries taking care that polarity is correct.

** It is advisable to replace all six batteries at the same time for longer battery life.*

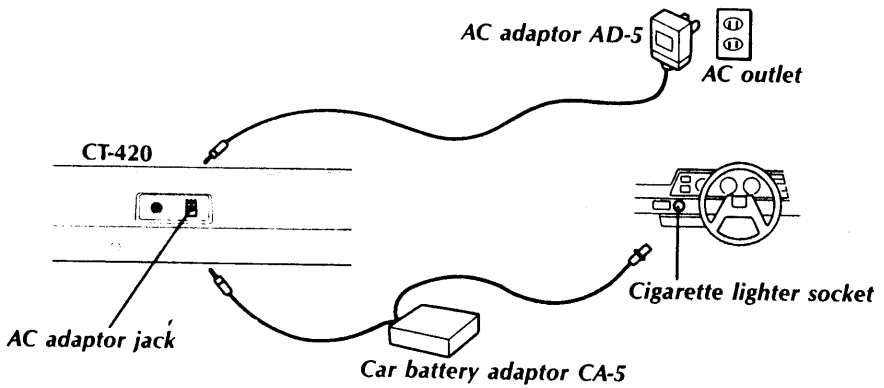
** Standard battery life is approximately 8 hours.*

- **Car battery**

  With the car battery adaptor (CA-5, optional), DC power is supplied from a car battery through the cigarette lighter socket.

AC Power

An AC adaptor (AD-5, optional) is required when using household current. Use only a genuine CASIO adaptor with the same voltage rating (100, 117, 220, or 240) as the power supply in your area to prevent component damage. Plug the AC adaptor into the AC outlet and the cord into the unit. This will automatically cut off the battery power supply.



* Use only genuine CASIO adaptors to avoid risk of damage.

* The adaptor may become warm when left connected to an outlet. This is normal, but the adaptor should be disconnected when not in use.

★ **Auto power off function**

Power is automatically cut off approximately 6 minutes after the last operation of the unit. Power supply can be restored by switching power OFF and then ON again.

PRECAUTIONS

Incorrectly using batteries can cause leakage or bursts, and may damage your product. Note the following precautions:

* Be sure that ± polarity is correct.

* Do not mix battery types.

* Do not mix new batteries with old ones.

* Never leave dead batteries in battery compartment as they may cause malfunctions.

* Remove batteries when not using the product for extended period.

* The supplied batteries are not rechargeable.

* Do not expose the battery to direct heat, let it become shorted or try to take it apart.

(If a battery leaks, clean out the battery compartment of the product immediately, taking care to avoid letting the battery fluid come into direct contact with your skin.)

3 General Operation

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

① Set the POWER/CHORD switch to ON.

② Adjust the volume level.

③ Select one of 20 preset tones (see "Preset Tones", page 8) or one of 210 Tone Bank sounds (see "Tone Bank Sound Combinations", page 10).

④ Now, start playing.

4 Preset Tones

* *Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

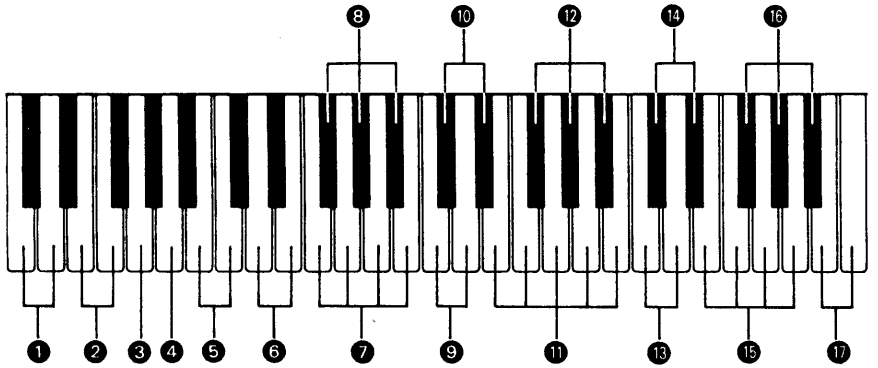
- **To select a preset tone**

1) Press the tone SELECT button to switch between the two tones assigned to each TONE selector. When the SELECT indicator is lit, you can select one of the upper tones (1—10). When it is not lit, you can select one of the lower tones (11—20).
2) Press a TONE selector to choose a preset tone.

* *"PIANO" tone is automatically selected whenever you switch the power of the keyboard ON.*

- **To select percussion sounds**

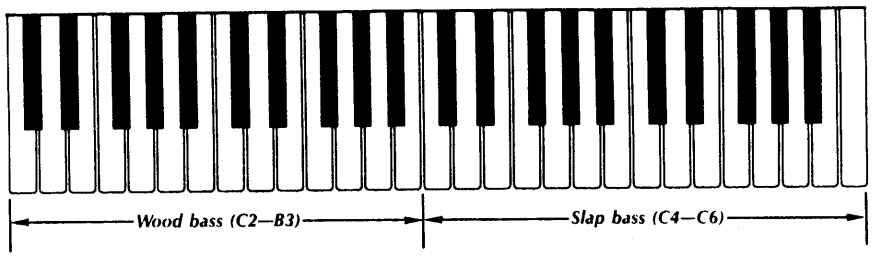
When PERCUSSION sound is selected by the tone selector, the keyboard keys can be used to play a total of 42 different built-in percussion sounds. These sounds are assigned to respective keys as shown below;



1. bass drum 1/2
2. snare drum 1/2
3. gated snare drum
4. rim shot
5. closed hihat 1/2
6. open hihat 1/2
7. crash cymbal 1/2/3/mixed
8. synth. cymbal 1/2/3
9. ride cymbal 1/2
10. gong 1/2
11. tom 1/2/3/4/mixed
12. synth. tom 1/2/3
13. cow bell 1/2
14. triangle open/mute
15. timbales; high mute/high/low/mixed
16. computer game sound 1/2/3
17. agogo high/low

- **Dual bass sounds**

When BASS sound is selected by pressing the "BASS" button (one of the tone selector), two different bass tones can be played on the keyboard at the same time.
The WOOD BASS tone sounds on the lower half of the keyboard (C2—B3), while the SLAP BASS tone sounds on the upper half (C4—C6).



5 Tone Bank Sound Combinations

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

This keyboard features Casio's innovative "Tone Bank" feature, which lets you choose from an amazing total of 210 different sound combinations. To create these layered sounds, the Tone Bank function actually integrates the characteristics of the 20 preset tones. You can select these sound combinations through the following procedure.

• To select Tone Bank Sound Combinations

① Select any of the 20 preset tones. When selecting Tone Bank sounds, the tone initially selected is used as a base, or "Primary" sound.

** When the Primary sound is selected, the keyboard features 10-note polyphony.*

② Press the TONE BANK button.
This activates the Tone Bank function, allowing you to choose a Secondary sound to integrate with the Primary sound you just selected.

** After the TONE BANK button is pressed, the keyboard changes to 5-note polyphony.*

③ Select any other of the 20 preset tones. The characteristics of this "Secondary" sound is automatically integrated with those of the "Primary" sound already selected.

• To select a different secondary sound

The secondary sound can be changed at any time, as long as the Tone Bank function is selected. Simply select a different preset tone—the primary sound remains the same.

• To select a different primary sound

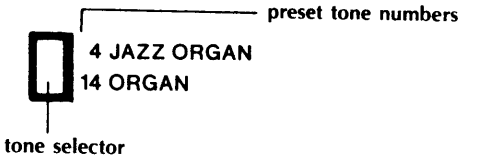
The primary sound can be changed by first turning the Tone Bank function OFF (press TONE BANK button so that indicator goes out), selecting any other preset tone, and finally turning the Tone Bank function back ON. The secondary tone remains the same in this case.

<Example of Tone Bank Operation>

Look at the 210-SOUND TONE BANK list on the keyboard. Here, let us produce the TONE BANK sound [4][6] BRASS ORGAN
The two numbers to the left of the TONE BANK sound name are preset tone numbers (see the list below). The number 4 represents the "Primary" sound, while 6 is the "Secondary" sound. Basically, the 210-SOUND TONE BANK list indicates that if you mix preset tone **6 BRASS ENS** with preset tone **4 JAZZ ORGAN**, you will get BRASS ORGAN.

1	PIANO
2	HARPSICHORD
3	VIBRAPHONE
4	JAZZ ORGAN
5	PIPE ORGAN
6	BRASS ENS
7	FLUTE
8	CHORUS
9	BELLS
10	PERCUSSION

11	ELEC PIANO
12	FUNKY CLAVI
13	JAZZ GUITAR
14	ORGAN
15	ACCORDION
16	STRINGS
17	SYNTH-REED
18	METALLIC SOUND
19	SYNTH-ENS
20	BASS



• To select [4][6] BRASS ORGAN

① First, select preset tone 4, JAZZ ORGAN. This first selection becomes the "Primary" sound.
② Press the TONE BANK button. At this time, the TONE BANK indicator above the button should light.
③ Select preset tone 6, BRASS ENS. This selection becomes the "Secondary" sound.
BRASS ORGAN is now selected. The following is a summary of the above operation.

[4][6] BRASS ORGAN = ☐ 4 JAZZ ORGAN + TONE BANK + ☐ 6 BRASS ENS

6 Auto-rhythms

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

• To play an auto-rhythm

① Press the rhythm SELECT button to switch between the two rhythms assigned to each RHYTHM selector. When the SELECT indicator is lit, you can select one of the upper rhythms (ROCK 1, 8 BEAT 1, etc.). When it is not lit, you can select one of the lower rhythms (ROCK 2, 8 BEAT 2, etc.).

② Press a RHYTHM selector to choose an auto-rhythm.

** "ROCK 1" rhythm is automatically selected whenever you switch the power of the keyboard ON.*

③ Press START/STOP button to start the rhythm.

④ Adjust the tempo of the rhythm by using the TEMPO control buttons. Pressing the <▲> button will increase tempo, while pressing the <▼> button will decrease tempo.

** Tempo of the auto-rhythm can be adjusted between 40 and 256 beats per minute. Pressing both tempo keys at the same time resets the tempo to 132 beats per minute.*

** After playing the demonstration tune, the tempo of the auto-rhythm is changed. Adjust the tempo of the auto-rhythm if you need.*

⑤ You can adjust the relative volume of the rhythm by using the ACCOMP VOLUME slider.

⑥ Press START/STOP button once again to stop auto-rhythm play.

• Using SYNCHRO/FILL-IN button

Press to enter synchro start standby. Rhythm starts when an accompaniment keyboard key (lower 1.5 octave, C through F) is pressed. (See page 14 to use synchro start in the auto-accompaniment performance.) When pressed during auto-rhythm and accompaniment performance, an appropriate fill-in is inserted in the rhythm pattern. If the button is held down, the fill-in pattern is repeated until the end of the measure during which the button is released.

• Using INTRO/ENDING button

If you press the INTRO/ENDING button instead of pressing the START/STOP button to start an auto-rhythm, the selected auto-rhythm begins after a one-measure intro pattern. This can be an effective way to lead into auto-rhythm performance. If pressed during auto-rhythm and accompaniment performance, the rhythm stops after an appropriate ending pattern.

★ Using synchro start with an intro pattern

Press the SYNCHRO/FILL-IN button to enter synchro start standby, and subsequently press the INTRO/ENDING button. Rhythm starts when an accompaniment keyboard key is pressed, after a one-measure intro pattern.

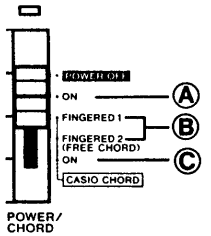
7 Auto-accompaniment

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

• POWER/CHORD switch

Slide to switch the power ON and to select one of the Casio Chord functions.

Ⓐ .....For normal play without auto-accompaniment.
Ⓑ .....For auto-accompaniment pressing chords as usual.
Ⓒ .....For auto-accompaniment using the Casio Chord system.

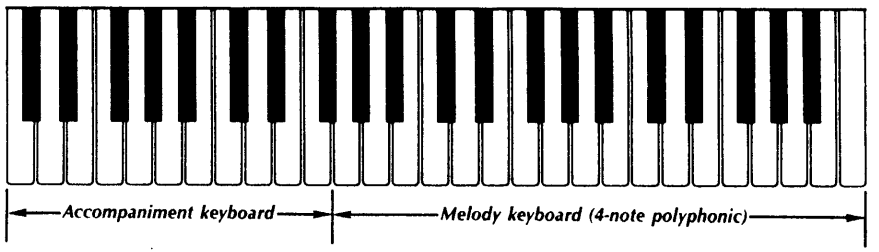


• ACCOMP VOLUME slider

Adjust the volume of the auto-accompaniment.

NOTES:

- If the POWER/CHORD switch is set to Ⓑ "FINGERED (1 or 2)" or Ⓒ "ON", the lower 1.5 octave of the keyboard become accompaniment keyboard keys, and the upper part of the keyboard becomes 4-note polyphonic.



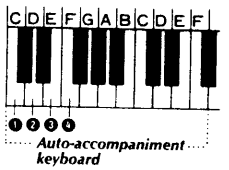
- During auto-accompaniment performance, chord played on the accompaniment keyboard will continue to sound after releasing the keys.
- Auto-accompaniment starts with rhythm, the moment the accompaniment keyboard key is pressed if synchro start is in standby status.

Casio Chord system

The Casio Chord system has been developed so you can play the four main types of chords more easily. Playing of the chords is simplified as shown below:

- Pressing one of the accompaniment keyboard keys produces a major chord corresponding to that note.
- Simultaneously pressing any key to the right (two keys at the same time) results in a minor chord.
- Similarly, pressing one more key to the right (three keys in all) produces a seventh chord, and pressing the fourth key to the right (four keys in all) creates a minor seventh chord.

<Examples>
C (C major chord)—Press ❶.
Cm (C minor chord)—Press ❶, ❷ together.
C_7 (C seventh chord)—Press ❶, ❷, ❸ together.
C_{m7} (C minor seventh chord)—Press ❶, ❷, ❸, ❹ together.



* *Not only ❷, ❸, and ❹, but any black or white keys can be used as long as they are to the right of ❶.*

[1] Auto-accompaniment using the Casio Chord system (One-finger method)

① Set the POWER/CHORD switch to "CASIO CHORD ON" (Ⓒposition).
② Select one of the auto-rhythms and press the SYNCHRO/FILL-IN button.
* *Tempo indicator lights, meaning that the accompaniment keyboard keys are ready for play.*
③ Play on the accompaniment keyboard keys according to the Casio Chord system.
* *Adjust the tempo and accompaniment volume using the respective controls.*

[2] Auto-accompaniment play using standard chord fingering

① Set the POWER/CHORD switch to "FINGERED 1" or "FINGERED 2".
② Select one of the auto-rhythms and press the SYNCHRO/FILL-IN button.
* *Tempo indicator lights, meaning that the accompaniment keyboard keys are ready for play.*
③ Play a chord on the accompaniment keyboard keys.
* *Adjust the tempo and accompaniment volume using the respective controls.*
* *This unit is capable of recognizing the following chords; <M, m, −5, +5, dim, sus4, 7, M7, m7, mM7, m7-5, 7sus4, 9, m9>*

<About "Fingered 1" and "Fingered 2">

This keyboard features two different types of fingered accompaniment patterns. You can select which type you want by selecting either the Fingered 1 mode, or the Fingered 2 mode. Respective accompaniment patterns and characteristics are as listed below.

(Fingered 1 Accompaniment)
Accompaniment consists of a single bass line and two different backing chord patterns. The pattern does not change until you play a chord consisting of at least 3 notes.

(Fingered 2 Accompaniment)
Accompaniment consists of a single bass line and a single backing chord pattern. In addition, you can add notes manually in two-note polyphony on the "accompaniment keyboard" without affecting the accompaniment pattern. The pattern does not change until you play a chord consisting of at least 3 notes. Fingered 2 accompaniment also allows you to choose the way the chord will play rhythmically. If you keep repeating your chord shape in any rhythmic pattern you choose (quarter-notes, eight-note triplets or any syncopation) this keyboard will play that chord pattern rhythm, allowing for more flexibility in your accompaniment patterns.

* *Auto-accompaniment tones are preset in correspondence to each auto-rhythm type. A list of auto-rhythms and corresponding accompaniment tones is provided on page 16.*

<About the tones used in the auto-accompaniment>

Each auto-accompaniment pattern consists of one bass line and two types of chord lines (chord 1 and chord 2). The tones of these elements are preset corresponding to each auto-rhythms as shown below;

RHYTHMS	CHORD 1 TONES	CHORD 2 TONES	BASS TONES
ROCK 1	BRASS ENS.	METALLIC SOUND	SLAP BASS
ROCK 2	BRASS	SYNTH. CLAVI	SLAP BASS
8 BEAT 1	JAZZ ORGAN	PIANO	SLAP BASS
8 BEAT 2	METALLIC SOUND	BRASS ENS.	SLAP BASS
16 BEAT 1	MARIMBA	ELEC. PIANO	SLAP BASS
16 BEAT 2	SYNTH. CLAVI	BRASS ENS.	SLAP BASS
DISCO 1	SYNTH. CELESTA	BRASS ENS.	SLAP BASS
DISCO 2	HARP	STRINGS	BRASS ENS.
POPS 1	JAZZ ORGAN	PIANO	WOOD BASS
POPS 2	FLUTE	BRASS ENS.	SLAP BASS
SLOW ROCK 1	PIANO	VIBRAPHONE	WOOD BASS
SLOW ROCK 2	PIANO	HARP	WOOD BASS
SWING	PIANO	BRASS ENS.	WOOD BASS
SAMBA	SYNTHE. CLAVI	JAZZ ORGAN	SLAP BASS
BOSSA NOVA	ELEC. PIANO	STRINGS	WOOD BASS
WALTZ	STRINGS	ORGAN	WOOD BASS
REGGAE	JAZZ ORGAN	FUNKY CLAVI	SLAP BASS
TANGO	ACCORDION	PIANO	WOOD BASS
BEGUINE	PIANO	JAZZ GUITAR	WOOD BASS
MARCH	BRASS ENS.	FLUTE	BRASS ENS.

• Using the auto harmonize function

When you're using the Casio Chord or fingered chord function, you can add automatic harmony to your melodies by pressing the AUTO HARMONIZE button. If you use this function when Tone Bank button is ON, automatic harmony is added using the "Secondary" sound (see "Tone Bank Sound Combinations", page 10), and "Primary" sound performance becomes monophonic.

** When you select this function, melody keyboard performance becomes monophonic even if no accompaniment keyboard keys are pressed.*

8 Troubleshooting

** For any malfunction, always check battery condition first. (see page 6)*

Trouble	Possible Cause	Remedy
No sound, even if keys are pressed.	1. Main volume turned down. 2. Headphones connected. 3. Auto power off has activated.	1. Turn up main volume. 2. Disconnect headphones. 3. Turn the power switch off and then on again.
No rhythm. No accompaniment.	Main and accompaniment volume turned down.	Turn up main and accompaniment volume.
Occasional interference.	Refrigerators, washing machines and similar electric appliances.	Use outlet as far away as possible from appliance thought to be the cause.
No sound when connected to external amplifier.	1. Main volume turned down. 2. Defective connection cord.	1. Turn up main volume. 2. Replace connection cord.

9 Care of Your Keyboard

1. **Avoid heat, humidity, and direct sunlight.**
   Do not overexpose the unit to direct sunlight, place it near a heater, or in any area subject to high temperature.

2. **Avoid severe impacts and do not drop.**
   Severe impacts can result in malfunction. When carrying or transportion the unit, protect the keyboard and keys by packing with soft cloth.

3. **Keep the unit free of liquids, dust, particles, etc.**
   Do not allow foreign matter to enter between the keys. Be especially careful of metallic objects such as hairpins, sewing needles or coins. Also, do not allow the unit to get wet.

4. **Never attempt to modify any part of the unit.**
   Your keyboard is a precision musical instrument made up of sophisticated electronic parts. Any modification of, or tampering with internal components can cause trouble or malfunction.

5. **Do not use lacquer thinner or similar chemicals for cleaning.**
   Clean the keyboard with a soft cloth dampened with a mild detergent solution and squeeze it until almost dry.

6. **Remove batteries before extended storage.**
   Batteries left in the unit for long periods can leak and cause damage to electronic circuitry.

7. **In case of malfunction...**
   Check whether buttons and connections are set correctly as indicated in the troubleshootiong chart. If the unit still does not work properly, contact the original retailer or a nearby dealer. Never attempt to repair the unit yourself. This can result in serious damage of the components.

10 Specifications

Model:	CT-420
Number of keys:	49 keys
Polyphonic:	10-note polyphonic
Preset tones:	20; Piano, Harpsichord, Vibraphone, Jazz organ, Pipe organ, Brass-ens, Flute, Chorus, Jazz guitar, Bells, Funky clavi, Metallic sound, Synth-ens, Percussion, Elec piano, Organ, Accordion, Strings, Synth-reed, Bass (Wood bass/Slap bass)
Tone bank sounds:	210
Auto-rhythms:	20; Rock 1-2, 8 beat 1-2, 16 beat 1-2, Disco 1-2, Pops 1-2, Slow rock 1-2, Swing, Samba, Bossa nova, Waltz, Reggae, Tango, Beguine, March
Rhythm source:	49 PCM rhythm sources
Auto-accompaniment function:	Casio Chord on/fingered 1/fingered 2
Effect:	Auto harmonize
Terminals:	Output jack [output impedance: 40 Ω, output voltage: 2.5 V (RMS) MAX], AC adaptor jack (DC 9 V)
Tuning control:	A4=442 Hz ±30 cents
Built-in speakers:	12 cm dia × 2
Auto power off function:	Approximately 6 minutes after the last operation
Power source:	3-way AC/DC power source; • AC: 100, 117, 220, 240 V (±10 V), 50/60 Hz, with optional AD-5 AC adaptor • DC: 6 D size (SUM-1/R20P) manganese dry batteries Battery life: Approximately 8 hours • Car battery: Requires optional CA-5 car adaptor
Power consumption:	6 W
Dimensions:	960(W) × 303(D) × 92(H) mm 37 13/16″ (W) × 11 15/16″ (D) × 3 5/8″ (H)

Weight:	4.7 kg (10.4 lbs) including batteries
Standard accessories:	6 "D" size batteries, score stand, dust cover

** Designs and specifications are subject to change without notice.*

GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A. (not applicable to other areas).

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

..... reorient the receiving antenna
..... relocate the computer with respect to the receiver
..... move the computer away from the receiver
..... plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

TONE BANK KEYBOARDS CT-420

INSTRUMENTO MUSICAL ELECTRONICO

Introducción

Su nuevo teclado CT-420 es un instrumento musical de avanzada que incorpora la tecnología electrónica más moderna para que su manejo sea lo más simple posible. Su excepcional sonido, respaldado por una gran cantidad de características y funciones sofisticadas hacen que este teclado sea una verdadera fuente de diversión para todos. Para poder disfrutar al máximo de las características y funciones de esta unidad, le recomendamos leer detalladamente este manual y seguir las instrucciones contenidas.

Indice

1. Guía general 22
2. Fuente de alimentación 24
3. Operación general 25
4. Sonidos programados 26
5. Combinaciones de sonidos del banco de sonido 28
6. Ritmos automáticos 30
7. Acompañamiento automático 31
8. Localización de averías 35
9. Cuidado de su unidad 36
10. Especificaciones 37